

WHAT IS CLAIMED IS:

1. A bandpass filter comprising:
 - a dielectric substrate;
 - a resonator electrode provided on a portion of a plane at an intermediate height in the thickness direction of the dielectric substrate so as to oppose a top surface of the dielectric substrate and includes an aperture;
 - first and second ground electrodes arranged over and under the resonator electrode, respectively, in the thickness direction of the dielectric substrate so as to oppose the resonator electrode with dielectric layers disposed therebetween and so as to sandwich the resonator electrode;
 - input-output coupling electrodes coupled to the resonator electrode;
 - input-output terminal electrodes provided on the outside surface of the dielectric substrate and being electrically connected to the input-output coupling electrodes; and
 - a via-hole electrode that penetrates through the aperture in the thickness direction of the dielectric substrate so as not to be electrically connected to the resonator electrode and that is electrically connected to the first and second ground electrodes.
2. A bandpass filter according to Claim 1, further comprising second via-hole electrodes provided in an area outside the resonator electrode in a plan view of the resonator electrode and that are electrically connected to the first and second ground electrodes.
3. A bandpass filter according to Claim 1, wherein the resonator electrode is arranged to have a plurality of non-degenerate resonant modes and such that the plurality of resonant modes are coupled to each other by the aperture to define a dual-mode bandpass filter.

4. A bandpass filter according to Claim 1, wherein the resonator electrode is a ring resonator electrode.

5. A bandpass filter according to Claim 1, wherein the first and second ground electrodes are disposed on an upper and lower surface of the dielectric substrate, respectively.

6. A bandpass filter according to Claim 1, wherein the first and second ground electrodes are disposed inside of the dielectric substrate, respectively.

7. A bandpass filter according to Claim 1, wherein the resonator electrode has a substantially rectangular shape.

8. A bandpass filter according to Claim 1, wherein said input-output coupling electrodes are disposed on a portion of a plane at an intermediate high in the thickness direction of the dielectric substrate.

9. A bandpass filter according to Claim 1, wherein the aperture is disposed at a central portion of the resonator electrode.

10. A bandpass filter according to Claim 1, wherein the first and second ground electrodes are larger than the resonator electrode.

11. A bandpass filter according to Claim 1, further comprising at least one additional via-hole electrode connected to at least one of the input-output electrodes.